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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/560,672	12/14/2005	Christopher Bayly	MC085YP	2331

210 7590 07/25/2007

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EXAMINER	
CHENG, KAREN	
ART UNIT	**PAPER NUMBER**
1626	

MAIL DATE	DELIVERY MODE
07/25/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/560,672	BAYLY ET AL.	
	Examiner	Art Unit	
	Karen Cheng	1626	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) *9 and 11* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,8 and 10* is/are rejected.

7)☒ Claim(s) *1 and 7* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *02/23/06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claims 1-11 are currently pending in the instant application. Claims 9 and 11 have been withdrawn from consideration as being directed to a non-elected invention.

Lack of Unity Requirement

Claims 1-11 are drawn to more than one inventive concept (as defined by PCT Rule 13), and accordingly, a restriction is required according to the provision set forth in PCT Rule 13.2.

PCT Rule 13.2 states that the international application shall relate to one invention only or to a group of inventions so linked as to form a single general inventive concept (requirement of unity of invention). PCT Rule 13.2 further states unity of invention as referred to in PCT Rule 13.1 shall be fulfilled only when there is a technical relationship among those inventions involving one or more of the same or corresponding special technical features. Special technical features, as defined in PCT Annex B, Part 1(b), include those technical features which define a contribution over the prior art.

PCT Annex B, Part 1(e) provides combinations of different categories of claims and states:

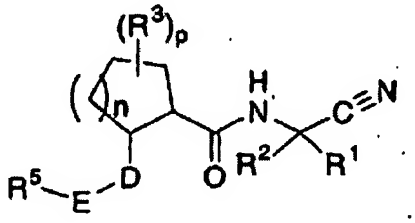
"The method for determining unity of invention under Rule 13.2 shall be construed as permitting, in particular, the inclusion of any one of the following combinations of claims of different categories in the same international application:

(i) in addition to an independent claim for a given product, an independent claim for a process specially adapted for the manufacture of the said product, and an independent claim for a use of the said product, or

(ii) in addition to an independent claim for a given process, an independent claim for an apparatus or means specifically designed for carrying out the said process, or

(iii) in addition to an independent claim for a given product, an independent claim for a process specially adapted for the manufacture of the said product and an independent claim for an apparatus or means specifically designed for carrying out the said process,..."

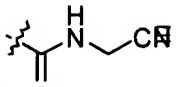
This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

Group I: Claims 1-8 and 10 drawn to compounds and pharmaceutical compositions comprising compounds of formula 

Group II: Claims 9-11 drawn to a method of treating a disease selected from: osteoporosis, glucocorticoid induced osteoporosis, Paget's disease, etc by administering a therapeutically effective amount of said compounds.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted. If applicants elect Group II, a single disease from the list should be chosen for examination purposes. The claims herein lack unity of invention under PCT Rules 13.1 and 13.2 because, pursuant to 37 CFR 1.475(a), **Groups I-II** lack unity of invention since under 37 CFR 1.475:

Where a group of inventions is claimed in an application, the requirement of unity of invention shall be fulfilled only when there is a technical feature among those inventions involving one or more of the same or corresponding special technical features. . .those technical features that define a contribution which each of the claimed inventions, considered as a whole, makes over the prior art.

The structural moiety common to **Groups I-II** is  .

This technical feature is not a special technical feature because it fails to define a contribution over the prior art (*see* WIPO Pub.No. WO 01/96285). Therefore, Claims 1-11 are not so linked as to form a single general inventive concept, and there is lack of unity of invention. The variables vary extensively and, when taken as a whole, result in vastly different compounds. Additionally, the vastness of the claimed subject matter and the complications in understanding the claimed subject matter impose a serious burden on any examination of the claimed subject matter.

Because the claims do not relate to a single general inventive concept under PCT Rule 13.1 and lack the same or corresponding special technical features, the claims lack unity of invention and should be limited to a product, a process for the manufacture of said product, ***or*** a method of use.

Furthermore, with respect to **Groups I-II**, even if unity of invention under 36 CFR 1.475(a) is not lacking, a national stage application, under 37 CFR 1.475(b), containing claims to different categories of invention will be considered to have unity of invention if the claims are drawn to only one of the following combinations:

(1) A product and a process specially adapted for the manufacture of said product; or
(2) A product and process of use of said product; or
(3) A product, a process specially adapted for the manufacture of said product, and a use of said product; or
(4) A process and an apparatus or means specially designed for carrying out said process; or
(5) A product, a process specially adapted for the manufacture of said product, and an apparatus or means specially designed for carrying out said process.

Moreover, according to 37 CFR 1.475(c), if an application contains claims to more or less than one of the combinations of categories of invention set forth in paragraph (b), unity of invention might not be present.

In the instant case, the claims are drawn to method methods of use. According to 37 CFR 1.475(e),

> The determination whether a group of inventions is so linked as to form a single general inventive concept shall be made without regard to whether the inventions are claimed in separate claims or as alternatives within a single claim.

As a result, the claims lack unity of invention and applicant is required to elect a single invention.

Applicant is advised that the reply to this requirement, to be complete, must include an election of the invention to be examined even if the restriction requirement is traversed (37 CFR 1.143).

The election of an invention or species may be made with or without traverse. To reserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the restriction requirement, the election shall be treated as an election without traverse.

Should applicant traverse on the ground that the inventions or species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the inventions or species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the inventions unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C.103(a) of the other invention.

Election

A telephone call was made to Applicant's Representative Nicole Beeler on 07/12/2007 to request an oral election to the above restriction requirement. A provisional election was made *with* traverse to prosecute Group I. Affirmation of this election must be made by applicant in replying to this Office action.

Priority

This application is a 371 of PCT/CA04/00948 filed on 06/28/04 and claims the priority of US Serial No. 60/483,678, filed on 06/30/03. This priority request has been acknowledged for the instant application.

Information Disclosure Statement

The Information Disclosure Statement that was received on 02/23/06 has been considered fully by the examiner. Please refer to Applicant's copies of the 1449 submitted herewith.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Written Description

Claims 1-6, 8 and 10 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed,

had possession of the claimed invention. The MPEP states that the purpose of the written description requirement is to ensure that the inventor had possession, as of the filing date of the application, of the specific subject matter later claimed by him. The courts have stated:

"To fulfill the written description requirement, a patent specification must describe an invention and do so in sufficient detail that one skilled in the art can clearly conclude that "the inventor invented the claimed invention." Lockwood v. American Airlines, Inc., 107 F.3d 1565, 1572, 41 USPQ2d 1961, 1966 (Fed. Cir. 1997); In re Gostelli, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989) ("[T]he description must clearly allow persons of ordinary skill in the art to recognize that [the inventor] invented what is claimed."). Thus, an applicant complies with the written description requirement "by describing the invention, with all its claimed limitations, not that which makes it obvious," and by using "such descriptive means as words, structures, figures, diagrams, formulas, etc., that set forth the claimed invention." Lockwood, 107 F.3d at 1572, 41 USPQ2d at 1966." Regents of the University of California v. Eli Lilly & Co., 43 USPQ2d 1398.

Further, for a broad generic claim, the specification must provide adequate written description to identify the genus of the claim. In *Regents of the University of California v. Eli Lilly & Co.* the court stated:

"A written description of an invention involving a chemical genus, like a description of a chemical species, 'requires a precise definition, such as by structure, formula, [or] chemical name,' of the claimed subject matter sufficient to distinguish it from other materials." *Fiers*, 984 F.2d at 1171, 25 USPQ2d 1601; *In re Smythe*, 480

F.2d 1376, 1383, 178 USPQ 279, 284985 (CCPA 1973) ("In other cases, particularly but not necessarily, chemical cases, where there is unpredictability in performance of certain species or subcombinations other than those specifically enumerated, one skilled in the art may be found not to have been placed in possession of a genus...") *Regents of the University of California v. Eli Lilly & Co.,* 43 USPQ2d 1398.

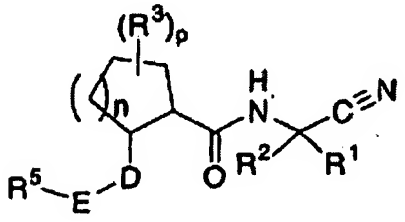
The MPEP states that for a generic claim the genus can be adequately described if the disclosure presents a sufficient number of representative species that encompass the genus. MPEP § 2163. If the genus has a substantial variance, the disclosure must describe a sufficient variety of species to reflect the variation within that genus. See MPEP § 2163. Although the MPEP does not define what constitute a sufficient number of representative species, the courts have indicated what do not constitute a representative number of species to adequately describe a broad genus. In *Gostelli*, the courts determined that the disclosure of two chemical compounds within a subgenus did not describe that subgenus. *In re Gostelli*, 872, F.2d at 1012, 10 USPQ2d at 1618.

The Guidelines for Examination of Patent Applications Under 35 USC 112, ¶1, "Written Description" Requirement (Federal Register, Vol. 66, No. 4, pg. 1105, column 3), in accordance with MPEP § 2163, specifically state that for each claim drawn to a genus the written description requirement may be satisfied through sufficient description of a representative number of species by a) actual reduction to practice; b) reduction to drawings or structural chemical formulas; c) disclosure of relevant, identifying characteristics (ie. structure) by functional characteristics coupled with a known or disclosed correlation between function and structure. The analysis of whether the

specification complies with the written description requirement calls for the examiner to compare the scope of the claim with the scope of the description to determine whether applicant has demonstrated possession of the claimed invention (Federal Register, Vol. 66, No. 4, p. 1105, 3rd column, 3rd paragraph). Below is such comparison.

I. ***Scope of Claims***.

Compounds of Formula with variables as defined in claim

1. 

The scope following variables are claimed broader than the scope of the disclosure (see Section II for appropriately claimed variables):

n: Claims 1, 8 and 10;

R^3: Claims 1-3, 5-6, 8 and 10;

D: Claims 1, 4, 8 and 10;

E: Claims 1-6, 8 and 10;

R^5: Claims 1-4, 8 and 10.

II. ***Scope of Disclosure***

Reduction to Practice:

The compounds reduced to practice support the following substitutions for Formula I:

n: two;

R^3: hydrogen, halo, and C_{1-2} alkyl wherein said alkyl group is optionally substituted with halo;

D: C_{1-3} alkyl, C_{2-3} alkenyl, C_{2-3} alkynyl, aryl and heteroaryl, substituted as defined;

E: aryl;

R^5: -SOmR7, -SOmR6, -R8SR6, -R6, -SOmN(Rc)(Rd), -SOmCH(R8)(R9), -SOm(C1-6 alkyl)C(O)(C0-6 alkyl)NR10, -SOm(C1-6 alkyl)N(R10)2, -SOm(C1-6 alkyl)R10, -SOm(C3-8 cycloalkyl)R10, -SO2N(R8)C(O)(R7), -SO2(R8)C(O)N(R7)2, -OSO2R8, C(R8R9)N(R6)2 wherein said groups as substituted as defined.

Reduction to Structural or Chemical Formulas:

The only disclosure, in addition to the species reduced to practice, is in form of a list of possible substituents for each variable. This type of disclosure is not viewed to be a representation of any of the species it entails. A "laundry list" disclosure of every possible moiety does not constitute a written description of every species in a genus because it would not "reasonably lead" those skilled in the art to any particular species. MPEP 2163.I.A. and *Fujikawa v. Wattanasin*, 93 F.3d 1559, 1571, 39 USPQ2d 1895, 1905 Fed. Cir. 1996). Therefore, there is no disclosure of species (eg. by reduction to structural/chemical formulas) in addition to those reduced to practice.

Correlation between Structure and Function:

A correlation between structure and function, for the instantly claimed genus of compounds, is neither known in the art nor disclosed in the specification. Thus, it is not

understood what *specific structural elements* are *essential* for the activity of the instantly claimed compounds as inhibitors of cathepsin cysteine protease.

III. Analysis of Fulfillment of Written Description Requirement:

The structure/activity relationship (SAR) for binding and activity is elucidated upon analysis of IC_{50} data of multiple compounds with various types of structural modifications. These types of studies provide insight into the structural limitations that are required for activity, ie. specific structural elements essential for the claimed activity. In the absence of such correlation, it is not possible to predict what structural modifications will allow for the preservation of the desired activity.

In conclusion: (a) substantial structural variation in the genus/subgenus embraced by claims 1-6, 8 and 10; (b) disclosure of species supporting genus is limited to compounds reduced to practice, which scope is not commensurate with the scope of genus claimed; (c) common structural attributes of the claimed genus, combined with a correlation between structure and function, is neither disclosed in the instant application nor commonly known in the art. Thus, the specification fails to provide adequate written description for the genus of compounds claimed and does not reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the entire scope of the claimed invention.

Enablement

Claim 10 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a composition comprising a claimed compound and a second specific compound, such as an organic bisphosphonate, specifically

alendronate, cimadronate, clodronate, etidronate, ibandronate, etc. does not reasonably provide enablement for a composition comprising a claimed compound and a second compound, such as an androgen receptor modulator, including a 5α-reductase inhibitor, inhibitor of osteoclast proton ATPase, integrin receptor antagonists, including those that antagonize, inhibit or counteract binding of a physiological ligand to $\alpha_V\beta_3$ or $\alpha_V\beta_5$ integrin, or agent that builds bone. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to practice the invention commensurate in scope with these claims.

In *In re Wands*, 8 USPQ2d 1400 (1988), factors to be considered in determining whether a disclosure meets the enablement requirement of 35 U.S.C. § 112, first paragraph, have been described. They are:

1. the nature of the invention,
2. the state of the prior art,
3. the predictability or lack thereof in the art,
4. the amount of direction or guidance present,
5. the presence or absence of working examples,
6. the breadth of the claims,
7. the quantity of experimentation needed, and
8. the level of the skill in the art.

The nature of the invention

The nature of the invention is a composition including a compound of claim 1 along with a second compound selected from: an organic bisphosphonate, an estrogen

receptor modulator, an androgen receptor modulator, an inhibitor of osteoclast proton ATPase, an inhibitor of HMG-CoA reductase, an integrin receptor antagonist, or an osteoblast anabolic agent.

The state of the prior art and the predictability or lack thereof in the art

The state of the prior art is that the pharmacological art involves screening in vitro and in vivo to determine which compounds exhibit the desired pharmacological activities. There is no absolute predictability even in view of the seemingly high level of skill in the art. The existence of these obstacles establishes that the contemporary knowledge in the art would prevent one of ordinary skill in the art from accepting any therapeutic regimen on its face.

It is noted that the pharmaceutical art is unpredictable, requiring each embodiment to be individually assessed for physiological activity. In re Fisher, 427 F.2d 833,166 USPQ 18 (CCPA 1970) indicates that the more unpredictable an area is, the more specific enablement is necessary in order to satisfy the statute. In the instant case, the instant claimed invention is highly unpredictable since one skilled in the art would recognize that in regards to pharmaceutical compositions comprising multiple active agents, one would need to consider drug-drug interactions.

For the preparation of pharmaceutical compositions containing multiple active ingredients, one needs to take into account drug-drug interactions. There are various types of anti-viral agents known in the prior art, which act by differing mechanisms such as virucidal agents, which directly inactivate viruses, antiviral agents, which inhibit viral replication, and immunomodulators, which boost the host immune response. Some of

these anti-viral agents may be incompatible with applicants compound of the formula I due to drug-drug interactions. As found in Drugs of Today 39(5), 2003, 301-38, Obach discloses that in regards to any given pharmacokinetic drug-drug interaction, the two drugs involved can be considered as either the "perpetrator" drug or the "victim" drug. The perpetrator is the drug that affects the activity of an enzyme of protein involved in the metabolism or disposition of the victim drug. The victim drug is the one that either causes side-effects or toxicity due to increased exposure, or lack of efficacy due to exposure decreased to below that required for therapeutic effect (page 302). There are varying mechanisms of drug interactions such as the reduction in the rate of the metabolism of one drug by another, the irreversible inactivation of drug-metabolizing enzymes, and the exposure to the victim drug is decreased (pages 303-304). Obach also discloses that there are a number of in vitro and in vivo experimental approaches to be taken to determine drug-drug interactions (page 304).

Additionally because there is wide range of receptor modulators and enzyme inhibitors (including inhibitor of osteoclast proton ATPase, an inhibitor of HMG-CoA reductase, an integrin receptor antagonist, or an osteoblast anabolic agent), it is not known what can be encompassed by this definition unless the compound is explicitly described in the instant specification. For example, with regards to an androgen receptor modulator, it is unclear what compounds fall within the category of a 5α-reductase inhibitor since no direction is given as to determine what would be considered a 5α-reductase inhibitor. Although applicants cite examples of compounds considered to fall into categories of receptor modulators, inhibitors and agents, the vague definitions

for certain compounds along with the unpredictability of drug-drug interactions would fail to enable one of ordinary skill in the art to have sufficient direction to determine what the second compound, such as a 5α-reductase inhibitor, integrin receptor antagonist, in a composition could be, and if in fact the composition would have the same desired effect. Additionally such a definition would encompass compounds that may exist but information about their physiological effects has not yet been fully explored.

The amount of direction or guidance present and the presence or absence of working examples

The specification cites a list of compounds from p. 18-25. However unless a compound is explicitly named, it cannot be determined what compounds can be considered to the second compound of a composition given definitions such as a 5α-reductase inhibitor, inhibitor of osteoclast proton ATPase, integrin receptor antagonist, etc.

The breadth of the claims

The instant breadth of the rejected claims is broader than the disclosure, specifically, the instant claims include a composition containing a compound from claim 1 in combination with a second compound selected from: an organic bisphosphonate, an estrogen receptor modulator, an androgen receptor modulator, an inhibitor of osteoclast proton ATPase, an inhibitor of HMG-CoA reductase, an integrin receptor antagonist, or an osteoblast anabolic agent. However the specification lists currently known compounds that may fall into this category but fails to adequately provide enough direction to determine what can be considered a second compound.

The quantity or experimentation needed and the level of skill in the art

It would require undue experimentation of one of ordinary skill in the art to ascertain what the second compound of the composition could be. As stated above, there is insufficient direction provided as to what exactly can be considered for example, an androgen receptor modulator since insufficient direction towards determination of a 5α-reductase inhibitor is given and there have been no test results or determination of potential drug-drug interactions between the claimed compound and the second compound. Factors such as "sufficient working examples", "the level of skill in the art" and "predictability", etc. have been demonstrated to be sufficiently lacking in the instant case for the instant composition claims. In view of the breadth of the claims, the chemical nature of the invention and unpredictability of drug-drug interactions, as well as the lack of working examples regarding the composition's activity as claimed, one skilled in the art would have to undergo an undue amount of experimentation to use the instantly claimed invention commensurate in cope with the claims. Absent factual data to the contrary, the amount and level of experimentation needed is undue. Therefore, claim 10 is rejected under 35 U.S.C. § 112, 1st paragraph.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-8 and 10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 1-8 and 10 recite the limitation "N-

oxide derivatives." The specification fails to limit and clearly delineate what can be considered a "derivative". According to Hackh's chemical dictionary, "derivative" is defined as a compound, usually organic obtained from another compound by a simple chemical process or a organic compound containing a structural radical similar to that from which it is derived (Hackh's chemical dictionary, 1972. Thus multiple derivatives of the compound(s) of formula I having various functional groups and chemical reactivity are encompassed by the instant claim(s). The "derivatives" of the compounds of Claim Claims 1-8 and 10 are not defined in the claims so as to know the metes and bounds of the claims. Therefore, Claims 1-8 and 10 are indefinite. This rejection can be overcome by deleting the term derivative from the claims.

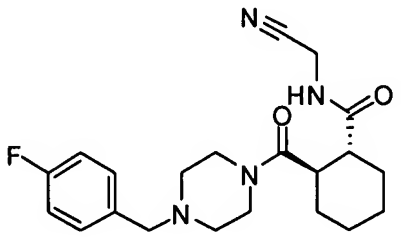
Claim Rejections - 35 USC § 102

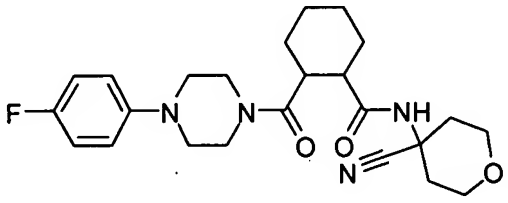
The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

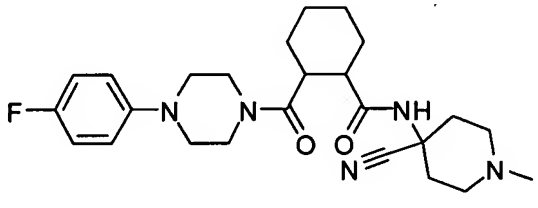
> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1-2, 4, 8 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Bekkali *et al* (see US Patent No. 6,313,117). Bekkali *et al* disclose exemplary compound 2-(morpholine-4-carbonyl)-cyclohexanecarboxylic acid(benzyloxymethyl-cyano-ethyl)-amide (see column 67) which reads on Applicant's invention wherein R_1

=H, R_2 = C_{1-6} alkyl substituted with OR^6, R_6 = C_1 alkyl aryl, n = 2, p = 0, D = C_1 alkyl substituted with keto, E = heterocycyl, R_5 = H.

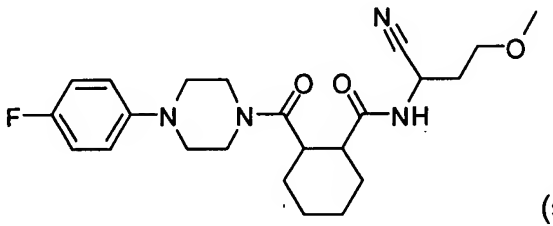
Claims 1-2, 4, 8 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Bailey *et al* (see US Pub. No. 2005/0245522). Bailey *et al* disclose exemplary compounds such as N-(cyanomethyl)-2-{[4-(4-fluorobenzyl)piperazin-1-yl]carbonyl}cyclohexanecarboxamide  (see Example 4, page 4) which reads on Applicant's invention wherein R_1=R_2=H, n = 2, p = 0, D = C_1 alkyl substituted with keto, E = heterocycyl, R_5 = C_1 alkyl substituted with aryl;

N-(4-cyanotetrahydro-2H-pyran-4-yl)-2-{[4-(4-fluorophenyl)piperazin-1-yl]carbonyl}-cyclohexane carboxamide  (see Example 7, page 5) which reads on Applicant's invention wherein R_1 and R_2 are taken together with the carbon atom to form a heterocycyl ring, n = 2, p = 0, D = C_1 alkyl substituted with keto, E = heterocycyl, R_5 = aryl;

N-(4-cyano1-methylpiperidin-4-yl)-2-{[4-(4-fluorophenyl)piperazin-1-yl]carbonyl}-cyclohexane carboxamide  (see Example 8, page

5) which reads on Applicant's invention wherein R_1 and R_2 are taken together with the carbon atom to form a heterocycyl ring, n = 2, p = 0, D = C_1 alkyl substituted with keto, E = heterocycyl, R_5 = aryl;

N-(1-cyano-3-methoxypropyl)-2-{[4-(4-fluorophenyl)piperazin-1-yl]carbonyl}-



cyclohexane carboxamide (see Example 9, page 5) which reads on Applicant's invention wherein R_1 =H, R_2 = C_{1-6} alkyl substituted with OR^6, R_6 = alkyl, n = 2, p = 0, D = C_1 alkyl substituted with keto, E = heterocycyl, R_5 = aryl.

Claim Objections

Claim 1 is objected to because of the following informalities: it has the variable m defined as an integer from zero to two, but m does appear to represent any structural moiety. Deletion of m is requested.

Claim Objections

Claim 7 is not written in proper format for a Markush-type claim. Specifically there should be an "and" separating out the last two species. Appropriate correction is required.

Specification

The disclosure is objected to because of the following informalities: there are multiple unrecognizable square symbols – see pg. 24-25, 42, 45 of the specification. It is believed these symbols are meant to represent Greek letters.

Appropriate correction is required.

Oath/Declaration

The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

> The oath or declaration is defective because:
> It does not identify the mailing address of each inventor. A mailing address is an address at which an inventor customarily receives his or her mail and may be either a home or business address. The mailing address should include the ZIP Code designation. The mailing address may be provided in an application data sheet or a supplemental oath or declaration. See 37 CFR 1.63(c) and 37 CFR 1.76.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karen Cheng whose telephone number is 571-272-6233. The examiner can normally be reached on M-F, 9AM to 5:30PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Joseph McKane can be reached on (571)272-0699. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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